

CLAIMS

What is claimed is:

1. A filter pack comprising:

5 a filter section comprising a sheet of filter media comprising a nonwoven polymer material, the sheet of filter media having a plurality of parallel folded pleats, the filter section having two opposed longitudinal sides extending parallel to the pleats and two opposed transverse sides extending transversely to
10 the pleats; and

a frame comprising a top edge band and a bottom edge band, the top edge band and the bottom edge band comprising the nonwoven polymer material, the top edge band and the bottom edge band each having a channel configuration, the top edge band attached to one
15 of the two transverse sides of the filter section, the bottom edge band attached to another of the two transverse sides of the filter section, ends of the pleats of the filter section fixedly retained within the top edge band and the bottom edge band.

20 2. The filter pack of claim 1, wherein the nonwoven polymer material comprises a polyester.

3. The filter pack of claim 1, wherein the filter section comprises a laminate comprising a melt blown polyester inner layer
25 and spun bond polyester outer layers, and the frame comprises a spun bond polyester.

4. The filter pack of claim 1, wherein the nonwoven polymer material of the filter section includes smaller fibers than the
30 nonwoven polymer material of the frame.

5. The filter pack of claim 1, wherein the nonwoven polymer material of the filter section is thicker than the nonwoven polymer material of the frame.

6. The filter pack of claim 1, wherein the nonwoven polymer material of the filter section includes a material having a greater filtration efficiency than the nonwoven polymer material of the frame.

7. The filter pack of claim 1, wherein the nonwoven polymer material of the frame comprises a material having a greater stiffness than at least one layer of the nonwoven polymer material of the filter section.

8. The filter pack of claim 1, wherein the top edge band and the bottom edge band are attached to the filter section with an adhesive.

9. The filter pack of claim 8, wherein the adhesive comprises a polyester adhesive.

10. The filter pack of claim 8, wherein the adhesive comprises a hot melt polyester adhesive.

11. The filter pack of claim 1, wherein the frame further comprises two side edge bands comprising the nonwoven polymer material, the two side edge bands each having a channel configuration, each of the side edge bands attached to an associated one of the two longitudinal sides of the filter section.

12. The filter pack of claim 1, wherein the pleats of the sheet of filter media have a spacing between adjacent peaks of no greater than 20 mm.

13. The filter pack of claim 1, wherein the pleats of the sheet of filter media have a spacing between adjacent peaks ranging from approximately 5 mm to approximately 7.5 mm.

5 14. The filter pack of claim 1, wherein the filter section comprises a minipleat filter media.

15. A filter assembly comprising:

a plurality of filter packs, each filter pack comprising:

10 a filter section comprising a sheet of filter media comprising a nonwoven polymer material, the sheet of filter media having a plurality of parallel folded pleats, the filter section having two opposed longitudinal sides extending parallel to the pleats and two opposed transverse sides extending transversely to the pleats, and

15 a top edge band and a bottom edge band, the top edge band and the bottom edge band comprising the nonwoven polymer material, the top edge band and the bottom edge band each having a channel configuration, the top edge band attached to one of the two transverse sides of the filter section, the bottom edge band attached to another of the two transverse sides of the filter section, ends of the pleats of the filter section fixedly retained within the top edge band and the bottom edge band;

20 the plurality of filter packs fixedly attached together along opposed abutting transverse faces of adjacent top and bottom edge bands, the attached filter packs having a top side, a bottom side, and opposed longitudinal sides; and

25 side edge bands having a channel configuration fixedly attached to the plurality of filter packs along the opposed longitudinal sides orthogonal to the top and bottom edge bands, the side edge bands and the outermost top and bottom edge bands forming a frame for the plurality of filter packs, the side edge bands comprising the nonwoven polymer material.

16. The filter assembly of claim 15, wherein the nonwoven polymer material comprises a polyester.

5 17. The filter assembly of claim 15, wherein the filter sections comprise a laminate comprising a melt blown polyester inner layer and spun bond polyester outer layers, and the top edge bands, the bottom edge bands, and the side edge bands comprise a spun bond polyester.

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18. The filter assembly of claim 15, wherein the nonwoven polymer material of the filter sections includes smaller fibers than the nonwoven polymer material of the top edge bands, the bottom edge bands, and the side edge bands.

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19. The filter assembly of claim 15, wherein the nonwoven polymer material of the filter sections is thicker than the nonwoven polymer material of the top edge bands, the bottom edge bands, and the side edge bands.

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20. The filter assembly of claim 15, wherein the top edge band, the bottom edge band, and the side edge bands are attached to the filter sections with an adhesive.

25 21. The filter assembly of claim 20, wherein the adhesive comprises a polyester adhesive.

22. The filter assembly of claim 20, wherein the adhesive comprises a hot melt polyester adhesive.

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23. The filter assembly of claim 15, wherein the pleats of the sheet of filter media have a spacing between adjacent peaks of no greater than 20 mm.

24. The filter assembly of claim 15, wherein the pleats of the sheet of filter media have a spacing between adjacent peaks ranging from approximately 5 mm to approximately 7.5 mm.

5 25. The filter assembly of claim 15, wherein the filter section comprises a minipleat filter media.

26. The filter pack of claim 15, wherein the nonwoven polymer material of the filter section includes a material having a
10 greater filtration efficiency than the nonwoven polymer material of the frame.

27. The filter pack of claim 15, wherein the nonwoven polymer material of the frame comprises a material having a greater
15 stiffness than at least one layer of the nonwoven polymer material of the filter section.